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ABSTRACT

The Southern Regional Education Board has embarked on a yearlong study of educational leadership in light of states' new accountability systems and standards. The effort aims to answer questions raised by this changing leadership role: What do we want school leaders to know and be able to do to improve student achievement? How can these qualities be developed and supported? How can leaders adapt school-improvement measures to the circumstances of their particular schools? The search for answers to these questions begins with this literature review. It presents much of the best thinking about practices that promote student achievement and their connection to educational leadership. It shows that there is consensus about what leaders need to know and be able to do to lead schools in which students are successful. Although the literature review highlights promising approaches, it is not an exhaustive study of all leadership areas. Its focus is on secondary programs and the growing body of knowledge about things that work at that level. It serves as a starting point for new ideas about the preparation, development, and credentialing of educational leaders who have the skills needed to improve student achievement, especially at the secondary level. The report suggests that fewer people are seeking jobs as educational leaders. This decline results in simultaneous problems of quality and quantity. (Contains 93 references.) (DFR)

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Leading School Improvement: What Research Says

A Review of the Literature

March 2001

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SREB

Leading School Improvement: What Research Says

A Review of the Literature

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Foreword

SREB Embarks on Yearlong Study of Leadership

SREB has studied educational leadership concerns for more than 15 years. In the early '90s, the work of the late distinguished educator Alton Crews laid a foundation for current proposals in educational leadership preparation and development. His establishment of a successful leadership academy changed the behaviors of school and district educational leaders and established SREB as a leader in the area of educational leadership. SREB has been proactive in focusing educational leadership on the singular purpose of improving student achievement.

In partnership with the Wallace-Reader's Digest Funds, SREB has embarked on a yearlong study of educational leadership in light of states' new accountability systems and standards. The effort aims to answer questions raised by this changing leadership role. *What do we want school leaders to know and be able to do to improve student achievement? How can these qualities be developed and supported? How can leaders adapt school improvement measures to the circumstances of their particular schools?*

The search for answers to these questions begins with this literature review. SREB collaborated with MPR Associates for this review because of MPR's previous exemplary work with public clients such as the U.S. Department of Education and the Office of Educational Research and Improvement. MPR Associates Inc., founded in 1980, is a consulting firm that specializes in management, planning and research for elementary, secondary and postsecondary education. The organization works extensively with federal, state and local agencies on initiatives that apply the results of research and large-scale data analyses to education policy and practice. MPR's research projects have focused on students in primary, secondary and postsecondary education and on the characteristics of teachers and schools.

This review presents much of the best thinking about practices that promote student achievement and their connection to educational leadership. It shows that there is consensus about what leaders need to know and be able to do to lead schools in which students are successful.

While the literature review highlights promising approaches, it is not an exhaustive study of all leadership areas. Its focus is on secondary programs and the growing body of knowledge about things that work at that level. It serves as a starting point for new ideas about the preparation, development and credentialing of educational leaders who have the skills needed to improve student achievement, especially at the secondary level.

The review does caution the reader that, although few topics have been discussed or written about more in the last decade than leadership, current information about how leaders are prepared and developed does not provide sufficient evidence about which models of preparation and development work best.

This report suggests that fewer people are seeking jobs as educational leaders. This decline results in simultaneous problems of quality and quantity. Salary, long hours, little local control and other reasons have been given for the decline in applicants. The author says that fixing these problems alone will not solve the greater problem. Aspiring effective leaders learn by doing and their preparation should be connected to the actual experiences of leading a school. Essential conditions must be ensured and superintendents and school boards need to understand how better to prepare, develop and sustain quality leadership.

The review also raises a number of serious questions. *How can we get local districts to assume greater responsibility in developing leaders? How can we create new kinds of partnerships between colleges and universities and local districts to prepare and develop educational leaders? How can we expand the certification process to include those inside and outside education who have demonstrated certain leadership skills? How can we help practicing educational leaders improve their leadership skills? How can we link leadership preparation programs to schools' efforts to implement whole-school reform, particularly in low-performing middle grades and high schools?*

We hope this literature review will inspire those who prepare and develop school leaders to rethink existing programs and the certification issue. There need to be new ways to link leadership preparation and the school setting to produce school leaders who can facilitate schoolwide efforts to make a difference in the lives of all students. We especially hope this document will stimulate dialogue in research-based universities and will result in new research into leadership preparation designs that have measurable effects on improving student achievement.

Gene Bottoms
Senior Vice President

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Director, Leadership Initiative

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Introduction

The last 20 years have witnessed an unparalleled effort to improve the nation's schools and raise student achievement in the elementary and secondary grades. New content standards for mathematics, science, English and social studies; increased requirements for high school graduation; reduced class sizes, especially in the early grades; new end-of-course exams and other major revisions to statewide testing and assessment; and performance-based accountability requirements for schools — these are only some of the prominent national and state initiatives in school reform during the last two decades. Yet, despite all of this activity and attention, significant changes in student achievement and in basic school practices have been slow at best.

There certainly has been some improvement. For example, scores on the National Assessment of Educational Progress (NAEP) have risen modestly. The percentage of high school seniors enrolling in postsecondary education is higher than ever. And selected, focused school-improvement initiatives — such as *High Schools That Work*, career academies and Accelerated Schools — have produced measurable gains in student performance. But success has been mostly scant and spotty.

The reasons for slow progress are many and complex. One that is receiving growing attention is the need for stronger school leadership — developing the teachers, principals, superintendents, school board members and other educators who direct and implement changes in curriculum, instruction and school organization.

Concern about educational leadership is not new. There is an extensive body of literature that attempts to define the qualities of effective school leaders and to link key attributes to successful schools (Alkin 1992). And both the scholarly and popular presses are awash in publications aiming to describe and develop good leaders (Covey 1990).

Today, however, there is added urgency. Principals and superintendents are retiring and resigning from education in unprecedented numbers. The average tenure of school superintendents in big cities is about 2.5 years; half of the nation's 50 largest school districts experienced vacancies in the top position in 1999 (CNN.Com 2000). The Washington Post (Nakamura and Samuels 2000) recently reported that one-third of 185 principals in Prince George's County, Md., have left in the last three years and that two-thirds of principals in the middle grades and high school statewide are eligible for retirement within five years. Such patterns are typical in other states and school districts (Glass 2000).

Moreover, fewer and fewer educators appear to want these posts. The increasing pressures of accountability, administrative complexity, fiscal constraints, instructional confusion and social chaos can dissuade the most able candidates from pursuing leadership positions in education. The most frequently cited reasons for this declining interest are the imbalance between responsibility and salary, the stress of the job, and unreasonable time demands.

But these objections may hide a deeper and more pervasive problem: Schools are not at all clear about what it means to be an effective educational leader. What precisely and realistically do we want school leaders to know and be able to do? How can such qualities and capabilities be developed and supported? Is the organization of U.S. schools — incentives and rewards; the relationship between school management and instruction; and the interaction between local politics and effective school governance — conducive to leadership that makes improvement in teaching and learning the top priority?

Some observers argue that instructional leadership has received short shrift in the training and practice of top-level administrators and that much greater emphasis is put on financial management, labor negotiations and community relations. Thus Richard Elmore (1999–2000, p. 9) notes:

> Instructional leadership is the equivalent of the holy grail in educational administration. Most programs that prepare superintendents and principals claim to be in the business of training the next generation of instructional leaders. Most professional development for school administrators at least refers to the central position of instruction. This is mainly just talk. In fact, few administrators of any kind or at any level are directly involved in instruction. Principals who develop skills and knowledge required to become instructional leaders do so because of their own preferences and values — and often at some cost to their own careers. The institutional structure does not promote, or select for, knowledge and skill in the area of teaching and learning. At best, it tolerates the few who cultivate them.

What, then, can be done to develop a larger cadre of educational leaders who can better direct school improvement and can help create a school climate, challenging curriculum and effective instructional practices that will raise student achievement? As with most major problems confronting American education, there is no single answer. Moreover, focusing on leadership without attending to the many other conditions that affect school effectiveness is not likely to yield much change. Still, leadership is an important ingredient in the mix of strategies for improving schools.

Consequently, this paper reviews some of the literature concerning leadership development in education. It begins by examining some recent efforts to specify the qualities, knowledge and skills that educational leaders are likely to need in today's schools. There is a surprising amount of consensus on the general requirements for effective leadership, but there is much less agreement on how best to cultivate these qualities. The history of efforts to develop leadership — both in education and in other fields — offers few clearly effective strategies, and there is far more understanding about what does not work than about what does.

The second part of the paper focuses on school improvement strategies — some of the specific remedies that research suggests can improve school effectiveness. The purpose of this section is to contribute to discussions about what education leaders need to know and be able to do to strengthen instruction and raise student achievement. Specifying "what works" is treacherous business, and what is reviewed here is by no means complete or definitive. Research on effective instruction and sound school practices is often ambiguous, inconsistent and inconclusive. Nevertheless, it is not true that "anything goes" in education, and if leaders are to help nourish better teaching and learning, they will need greater familiarity with promising approaches and ways to adapt them to a particular school's circumstances.

The review is far from exhaustive. It covers much — but far from all — of the education literature of the last 10 to 15 years and only skims work in business, organizational management, public administration and other fields. Moreover, it focuses primarily on high school leadership. While many issues affecting high schools are equally germane in elementary and middle schools, there are important differences. The time and other resources available to this effort have not permitted a thorough treatment of school leadership at all levels.

I. Developing Educational Leaders: *Strategies and Programs*

Introduction

What do educational leaders need to know and be able to do? With respect to general qualities and abilities, there is quite a bit of agreement (Bowles, King and Crow 2000; National Association of Secondary School Principals 1993, 1996). Ideally, leaders should be passionate about learning and have a clear vision for how schools can promote high levels of achievement for all students. These leaders are charismatic and decisive, and they have the people skills to work collaboratively and supportively to transform old school cultures. They are familiar with research and how to apply its lessons (with all of its ambiguities and inconsistencies) in making curriculum and instruction more effective. They can tackle multiple problems simultaneously while establishing priorities for what realistically can be accomplished at any one time. They can plan and manage resources, and they understand when plans must be abandoned or modified. They know how to motivate others, hold them accountable, evaluate them fairly and reward them appropriately. Finally, these leaders are able to refine their skills and learn new ones, adapting to new circumstances and deepening their knowledge and abilities.

More specifically, superintendents, principals and others responsible for leading effective educational initiatives need to be able to create and operate schools where faculty expect high achievement from all students, understand the depth and breadth of rigorous academic and technical standards, and incorporate these standards thoroughly and systematically into the curriculum. They need to engage all students by creating a personal, caring school environment and designing individualized programs of study that reflect each student's interests and experiences. Effective leaders also provide ongoing development to build teachers' understanding of students' diverse learning styles and the factors that block success. These leaders adopt innovative organizational and management strategies to facilitate communica-

tion and teamwork, and they make the most effective use of scarce resources — not only money but also time and expertise. They engage parents, employers and the community in the business of learning, and they define clear, reasonable roles and responsibilities. Effective educational leaders set challenging but realistic goals, track and analyze performance on these objectives, and use data to improve instruction and student performance continuously.

It is doubtful that any single educational leader possesses all of these qualities and abilities; most will be stronger in some areas than in others. Nevertheless, proficiency in most of these aspects of directing and managing schools appears to play an important role in developing and sustaining effective instruction. How, then, do we ensure that superintendents, principals, mentor teachers and school board members — all those responsible for leading and managing the daily business of education — have the necessary knowledge and skills?

What works best is far from clear. Extensive research on leadership development offers some important clues, but there is no well-defined, widely accepted approach to leadership development — in education or in any other field. In some respects, it is more apparent what will not work than what will. Two common mistakes deserve some attention: 1) assuming that a potential leader first must demonstrate the desired leadership qualities and competencies in order to be considered suitable for leadership positions; and 2) equating leadership development with visible "programs" (McCall 1998).

The "Right Stuff" Syndrome

"Leaders are born and not made." "You either have it or you don't." "Cream rises to the top." In many respects, these old adages have been discredited thoroughly by research on leadership during the last 30 years or so. Today, virtually every serious scholar of leadership development maintains that the knowledge and skills required for effective leadership can be learned (Heifetz 1994). Nevertheless, in much subtler but equally counterproductive forms, these simplistic assumptions about leadership pervade the ways organizations identify and develop leaders. Schools are no exception.

In some measure, the widespread emphasis on defining competencies lures organizations back to those naive premises. Once we have clarified in specific detail what we want leaders to know and be able to do — what constitutes the "right stuff" for being a successful principal or superintendent — it is tempting to seek out individuals who have these qualities and can demonstrate through previous accomplishments — or, even better, on a standardized, validated assessment — that

they have what it takes. In short, once we know what we want, we can assess candidates, screen out those who do not measure up ... and voila! We have our pool of desirable leaders.

The problem with this approach is that it ignores basic understandings about how people learn and how they master the competencies required for effective leadership. Much of what people learn, they learn by doing. It follows that, in order to learn many of the skills required for leading, one must have the opportunity to lead. However, if the opportunity to lead depends on demonstrating the desired skills, there is an obvious Catch-22. One way out is to retreat back into the "leaders are born" mentality. A better strategy, one that at least preserves the notion that leadership can be learned, is to create a program.

The Leadership Program Syndrome

If leadership requires mastery of certain knowledge and competencies and if these abilities and understandings can be learned, what better way to develop leaders than to design programs to teach the desired skills? Programs are visible and lend themselves nicely to creating a comprehensive curriculum, using knowledgeable experts to teach it and systematically assessing what is learned. Programs produce graduates who can be counted so that the supply of leaders can be checked against demand. Programs have clearly circumscribed budgets that can be controlled. Best of all, if programs fail to produce the desired results, they can be dismantled — or at least publicly bashed in the hope that a more effective program will rise to the challenge.

Formal leadership-development programs do have value. Discrete, formal education programs operated by universities, professional organizations and private vendors effectively can transmit knowledge that educational leaders — or leaders in general — need to know. Moreover, there are good programs and bad ones. Some are more deserving than others of the flogging that typically accompanies the handwringing that surrounds leadership discussions in education and elsewhere.

But it is quite possible, as McCall (1998) and others suggest, that most leadership skills — the really fundamental knowledge and abilities that make it possible to lead and manage an organization effectively — are learned primarily from experience and only rarely in the classroom. If this is true, then the preoccupation with leadership programs in corporations — as well as in schools — at best can produce marginal results and serve mainly to divert attention from a much more important and more difficult leadership-development challenge: designing strategies that harness how experience teaches.

How might this be done? What does it mean to advocate leadership development that uses the experience of working in the many facets of instruction as an organizing framework for teaching prospective leaders what they need to know and be able to do? What are some of the critical defining experiences? What is the process that would ensure not only that prospective leaders were exposed to these opportunities but also that the full learning potential of these experiences was realized?

There are not yet clear answers to these questions. However, as the remainder of this paper examines some programs and strategies that dominate the landscape of educational leadership development, these questions should be kept in mind. The "right stuff" syndrome and the leadership program syndrome are caricatures, but they serve a much more important purpose than parody and satire. They warn us that, despite the increasing pressures for more leadership development, it is possible that we are completely on the wrong track.

Initiatives to Reform Leadership Preparation

If improving educational leadership is a major obstacle to accelerating the pace of school improvement in the United States, it is not because the issue has been neglected in the last decade or two. There has been no shortage of national commissions, critical scholarship or demonstration programs. A brief history is instructive.

Higher Standards

In 1987, the National Commission on Excellence in Educational Administration (NCEEA) published *Leaders for America's Schools*, widely acknowledged as a pivotal document that called for reform in preparing educational leaders (McCarthy 1999; Murphy and Forsyth 1999). The report blasted recruitment practices, inattention to instructional leadership, shoddy professional development, low licensure standards and inattention to real-world problems and experience. The commission called for shutting down 300 of the approximately 500 educational leadership programs in colleges and universities nationwide, saying that they lacked the "resources or commitment to provide the excellence called for by the commission."

About this same time, the Danforth Foundation sponsored two influential projects, the Danforth Principal Preparation Program and the Danforth Professors Program. The programs involved 22 universities and stressed clinical experience, field mentorships, intellectual and moral development, and heavy recruitment of women and minorities among practicing classroom teachers (McCarthy 1999).

The NCEEA report sparked creation of the National Policy Board for Education Administration (NPBEA), which published two reports of its own: *Improving the Preparation of School Administration: An Agenda for Reform* (1989) and *Alternative Certification for School Leaders* (1990). These, too, recommended revising core curricula to emphasize instructional practice and ethics, raising standards for licensure and certification, and relying more heavily on clinical experience and other forms of field-based preparation. In the early 1990s, NPBEA developed accreditation standards that addressed four major areas: strategic leadership, organizational leadership, instructional leadership, and political and community leadership (Educational Leadership Constituent Council 1995).

These standards were adopted by the National Commission for the Accreditation of Teacher Education (NCATE). Preparation programs desiring NCATE accreditation now must demonstrate attention to 1) developing a shared school vision focused on teaching and learning; 2) understanding assessment and the role of data in decision-making; and 3) grounding leaders in a strong understanding of curriculum and instructional practices. In addition, students in accredited educational-administration programs must demonstrate that they can 1) implement useful professional development for teachers and administrators; 2) manage school resources and obtain additional support; 3) use technology to enrich curriculum and instruction; 4) create and implement strategies for harnessing community support; and 5) communicate goals via the media (Educational Leadership Constituent Council 1995).

Building further on these efforts, NPBEA — in collaboration with the Council of Chief State School Officers and with support from the Pew Charitable Trusts and the Danforth Foundation — established the Interstate School Leaders Licensure Consortium (ISLLC). ISLLC promulgated standards to underscore the centrality of student learning in leadership preparation programs. ISLLC specifies that the desirable educational leader promotes success for all students by:

1) facilitating the development, articulation, implementation and stewardship of a vision of learning that is shared and supported by the community;

2) advocating, nurturing and sustaining a school culture and instructional program conducive to student learning and the professional growth of staff members;

3) ensuring management of the organization, operations and resources for a safe, efficient and effective learning environment;

4) collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources;

5) acting with integrity, fairness and ethics; and

6) understanding, responding to and influencing the larger political, social, economic, legal and cultural contexts.

To date, the ISLLC standards have been distributed in 34 states, the District of Columbia and three territories (Murphy, Yff and Shipman 2000). The extent to which these standards have penetrated local hiring and professional development is not clear, but they appear to be influencing state licensure procedures (Murphy, Yff and Shipman 2000).

The national education-leadership initiatives of the last 15 years all have exhibited several strongly consistent themes. They all subscribe to the tenet that standards can facilitate change: Clarifying what we want leaders to know and be able to do increases the likelihood of getting it. They also reflect considerable agreement on what is wanted. They all emphasize the need for instructional leadership — leaders who can balance attention to nurturing instruction with the managerial skills and political acumen that have been the more traditional focus of educational leadership. Each undertaking subscribes to experiential learning, and each one depicts the leadership programs in the nation's education schools as mindlessly dependent on lectures and classroom-based instruction. Most presume — unfortunately, without much evidence — that it would be beneficial to model leadership preparation in education on medical schools' hallmark pedagogical practice: clinical experience. They all call for more diversity in leadership programs and the aggressive recruitment of women and minorities into the ranks of principals and superintendents.

Most of these themes probably are right. There is no strong opposition to the need for standards, though there is heated, continuous debate about precisely what these standards should be. It is so obvious that principals and superintendents should be able to nourish sound curriculum and effective teaching that one wonders whether we are diverting attention from the more fundamental and intractable causes for schools' lack of progress in raising student achievement. While there may be a better word than "clinical," which connotes sickroom and disease, experiential and problem-based learning are sound instructional practices — in universities as well as in elementary and secondary classrooms. Finally, although the last 15 years have seen some improvement, most principals and superintendents still are white men (Blackman and Fenwick 2000).

There is, however, something naggingly dissatisfying in all of this activity. For one thing, it concentrates on "novice leaders" — preparing people to become principals and superintendents (Mandel 2000). While attention to the entry level is

important, it is clear that concern about educational leadership has as much — if not more — to do with the quality of mature principals, superintendents and policy-makers. Relatively little attention has been paid to strategies for further developing educational leaders once they have met the requirements for initial licensure or certification.

A recent joint initiative by several organizations — the American Association of School Administrators, the Association for Supervision and Curriculum Development, the National Association for Elementary School Principals and the National Association of Secondary School Principals, with the endorsement of the National Policy Board for Education Administration — seeks to address the need for ongoing development of leaders (Mandel 2000). Modeling its proposal on the National Board for Professional Teaching Standards, this group advocates developing advanced standards that would define exemplary practice among experienced school administrators and would develop a system for encouraging recognition of these practices and for getting other educational leaders to adopt them.

Like its predecessors, this is a worthy endeavor to define standards of knowledge and competence for those entrusted with educating the nation's young people. But also like its predecessors, it focuses on the ends — not the means for achieving them. All of the hard work in recent years on developing standards — for curriculum and teaching as well as administration — has been based on the implicit but powerful presumption that standards can drive change. These efforts assume that if we clarify what we want, it will happen. Standards undoubtedly are necessary for improvement; they are unlikely, however, to be sufficient. And while there is growing consensus on the ends, there is much less agreement on the means.

Innovative Programs

Despite a lack of consensus on the means, quite a few programs have emerged during the last decade or so to promote the principles of leadership development.

First, the University Council for Education Administration, an umbrella organization for universities that prepare educational administrators, has tackled the fragmentation of traditional programs. The council has designed a core curriculum that more strongly emphasizes instructional practice and involves practicing educational leaders in specifying the content and organization of core courses. Among those institutions following the council's lead are the University of Connecticut, California State University at Fresno and the University of Colorado (McCarthy 1999; Van Meter 1999).

Second, fieldwork involving internships, problem-based learning and other forms of "experiential" training is much more commonplace (McCarthy 1999). For example, Michigan State University has introduced intensive simulation as part of its leadership preparation program (Van Meter 1999). The University of Florida and the University of Northern Colorado are relying much more heavily on internships, simulations and case studies (Van Meter 1999). Problem-based learning and other "practice-anchored" teaching methods are the hallmark of such programs as the Stanford University Prospective Principals Program (Bridges and Hallinger 1996; Van Meter 1999).

There are other examples. Alonso (2000) describes a cooperative superintendency/executive leadership program at the University of Texas at Austin as follows:

> This program contains an unusual selection process, as well as an ongoing focus on assessment. It employs 800 nominators to recruit applications, yet candidates must self-nominate and construct a portfolio that documents their leadership ability. It assesses students during a seminar that includes presentations, panel interviews, pencil and paper tests and simulations. Upon the student's entry, it assesses the student again and assigns both an individual curriculum plan and a group curriculum plan. The curriculum spirals along three dimensions — knowledge base, processes and development. The program stresses inductive, field-based activities, including a one- to two-year salaried internship. Students solve real-world problems with vertical district teams that include a superintendent, a board member, a principal, a central office administrator and a teacher.

Alonso (2000) cites other exemplary programs, such as those at the University of Utah and the University of Pittsburgh, that all stress instructional leadership, require extensive fieldwork and build program design around the collaborative efforts of practicing school leaders and university faculty.

It is hard to say whether these programs are working. There is little or no systematic evaluation, largely because it is difficult to imagine an evaluation design that would produce a definitive answer. If "working" means producing more graduates of leadership programs who know more about what constitutes good instruction, what is likely to affect student achievement and how to use data to better manage resources and operations, then these programs probably are an improvement over past efforts. If "working" means that participants in these programs have greater opportunities to experience the situations and challenges they will encounter in schools and school districts, then the added emphasis on fieldwork and other forms of practical, problem-based learning probably is paying off.

However, if "working" means that the graduates of these programs are leaving with the knowledge and skills to go forth and make the kinds of changes in schools that lead to higher student achievement — especially for students who have not fared well in elementary and secondary schools in America — the outcome of these efforts is much more in doubt.

The problem is not the lack of rigorous evaluation (although some solid, empirical evidence would be useful). Nor are these new emphases — on learning and instruction, practical experience integrated with classroom-based instruction, accountability and data-based management — misplaced. Rather, the problem is the possibly wrong presumption that the leadership "crisis" in American education — our schools' slow progress in raising significantly the achievement of all students — is the result of inadequate *preparation* (initial or ongoing) of teachers and administrators.

It is possible that, in the milieu of public education, success is unlikely for mentor teachers, principals, superintendents and school board members — no matter how well-prepared they are and how much they know about good teaching, effective motivation and sound management. The path upon which we are embarked is one that addresses leadership development largely outside the mainstream of daily school operations. The dominant approach to leadership development in education is largely *external* in two important respects.

First, despite the added attention to field experience, formal leadership preparation in education still occurs mostly outside of schools — in colleges and universities, weekend programs, retreats and staff development workshops organized by various nonprofit and for-profit organizations. In contrast to how leaders are developed in other professions and in business (admittedly far from perfect and not always worthy of emulation), education has not made leadership development the focus of the internal organization and operation of schools and school districts. Schools do not have internal plans for leadership development, they do not have systems for creating these plans, and they are not accountable for developing leaders from within. There is no better indicator of this problem than the "revolving door" that typifies principal and superintendent positions throughout most of the nation's elementary and secondary schools.

Higher education is a possible exception to this condemnation. Compared with elementary and secondary education, there is considerably less hand-wringing over the competency of university chancellors, college presidents, deans and department chairs. It is interesting to speculate about why this might be so.

It is also possible that among elementary and secondary schools, the concern over leadership is predominantly a worry for *public* schools. It is by no means clear that leadership development evokes the same level of anxiety in private schools, either secular or nonsecular, that it does in public schools. If this is so, why?

If leadership development is a conundrum primarily for public elementary and secondary education, the potentially misplaced focus on external solutions assumes a deeper, more important aspect. It is possible that the leadership "problem" in elementary and secondary education has little to do with preparation at all. Rather, it may be rooted in the basic organization and operation of public schools — the ways they are governed, what is valued, how people are rewarded (monetarily and otherwise), how career pathways are defined and supported, and how schools are held accountable, both internally and externally.

This is not an argument for vouchers or other forms of privatization. Regardless of whether public schools should be subjected to stronger market forces, achieving the more general objectives of school improvement and nurturing the leadership to produce it may require much more concentration on the internal workings of schools. These aims may have little to do with supporting a great deal more work on standards, defining the traits of effective leaders, assessing links between leadership behavior and student achievement, or strengthening instruction in formal programs that prepare teachers and administrators.

Rather, developing more effective leaders may depend heavily on creating the conditions in elementary and secondary schools that, by their very structure and operation, encourage leaders to succeed and help them do so. If that conclusion is even partially correct, the leadership challenge is very different from the one advanced by much of the conventional wisdom.

This sobering possibility is, in some respects, a cheap shot. It is easy to call for leadership development based on structural change and systemic reorganization of incentives and operating procedures. It is much more difficult to specify what such changes mean in concrete terms that can be implemented in schools and school districts. The literature so far does not contain well-conceived and adequately tested proposals for leadership development rooted in structural change.

Therefore, until research yields a clearer understanding of the kinds of internal restructuring that would nurture and sustain effective school leadership, we are left with the more mundane — but still important — task of continuing to clarify what school leaders need to know about improving instruction and management in the daily operation of schools. On this score, research has produced important insights; the remainder of this review turns to that literature.

II. School Improvement: *Strategies That Work*

Introduction

In the last two decades, work on the knowledge and skills required of effective educational leaders consistently has called for more attention to directing and managing instruction. The basic business of schools is to promote learning; obviously, educational leaders need to be proficient at this core function. Therefore, an effective leader of school improvement 1) understands the elements that contribute to student learning; 2) can assemble these elements into workable, coherent instructional programs; and 3) can work with faculty and other stakeholders to implement these instructional programs in a fashion appropriately tailored to particular students and local circumstances. In short, a strong educational leader (master teacher, principal, superintendent or school board member) skillfully can define, manage and improve curriculum and instruction. He or she maximizes student achievement by leading and shaping the daily practices of formal schooling.

A modest first step toward strengthening instructional leadership is to clarify what leaders need to know about what works in schools. What changes in curriculum, teaching practices, student support services, school organization, and governance and management are likely to raise student achievement? This seemingly straightforward question actually is not easy to answer. Most evidence on strategies — what and how to teach, how to structure and deliver instruction, how to accommodate different learning styles and levels of past performance — is ambiguous.

In this section, which is not comprehensive or exhaustive, we review some major ideas on school improvement strategies for which there is at least some credible evidence of effectiveness. None of these enjoys universal acceptance; even when there is general agreement on a strategy, it can be implemented badly. Moreover, no one technique used in isolation is likely to have much impact. Therefore, one essential requirement of strong school leadership is the ability to blend many practices into a balanced, well-managed package of school improvement.

The strategies reviewed here are organized under six topics:

1) **Raising the bar** — elevating expectations, increasing academic rigor and eliminating low-level tracking;
2) **Increasing student engagement and motivation** — adopting authentic pedagogy and providing additional support services;
3) **Providing focused, sustained professional development** — clarifying mission and developing teachers, teachers as trainers, and mentor teachers;
4) **Organizational and management practices** — effectively managing the school site and creating schedules;
5) **Building linkages** — forming relationships with parents, employers and the community; and
6) **Monitoring and accelerating improvement** — implementing policies for assessment and accountability.

Raising the Bar: Higher Achievement for All Students

Expect More of All Students

"You get what you expect." That statement contains simple truth as well as the risk of oversimplified nonsense. Teachers' and parents' expectations do influence student performance. For example, some studies indicate that when certain students are identified as having performed particularly well or poorly in the past (regardless of whether they actually did or not), teachers form preconceptions of students' future performance that become self-fulfilling (Covington 1992; Marshall and Weinstein 1984, 1986; Rosenthal 1987; Rosenthal and Jacobson 1968). Those labeled as low achievers perform poorly, and those predetermined to be high achievers do better.

Educators get signals about "expected" student performance in many ways. Teachers have access to student records from earlier grades, and assessments of individual students are passed on informally in faculty rooms, parent/teacher conferences and conversations with school counselors. Because student achievement is correlated strongly with traits such as race, socio-economic status and (in some subjects) gender, basic demographic characteristics easily can influence expectations.

Moreover, strongly ingrained cultural norms appear to play an important role. Stevenson's (1990) fascinating cross-cultural comparisons of American and Japanese teachers and classrooms revealed a remarkable difference. When asked to which primary student characteristic they attributed high achievement, Japanese teachers typically cited "hard work," while American teachers were much more likely to cite "student ability." In short, American teachers ascribe high performance to who students are; Japanese teachers attribute it to what students do. Interestingly, neither Japanese nor American teachers cited their own teaching performance as a major influence.

Recognizing the power of such preconceptions, which often are biased and ill-founded, some experts argue that teachers not only need to express high expectations and confidence in each student's abilities but also need to show that they value the student's culture and language, particularly for students whose backgrounds are not part of the mainstream. Moreover, teachers must notice and appreciate students' particular strengths and gifts in order to support further the students' self-esteem (National Association of Secondary School Principals 1996; Quality Education for Minorities Project 1990). When leaders model such behavior and expect teachers to follow suit, higher expectations and respect for all students are more likely to become the norm in a school. Moreover, creating opportunities for teachers constructively to discuss and confront their biases about students can be fruitful, if these discussions are handled with care and tact.

It is worth stressing that it is not productive to cut teachers off from information about their students' prior performance. While such information can have unintended negative consequences, knowledge about previous problems and attempted solutions can be quite valuable to a skilled teacher. The challenge is building teachers' capacity to use such data in ways that are constructive and free of bias. Meeting this challenge would be helped by much more attention to strengthening the knowledge of everyone involved in education — not just teachers but also principals, superintendents and policy-makers — about how individuals learn and how rates and styles of learning vary by age, aptitude and other personal characteristics.

Finally, while high expectations for all students are very important, they are hardly sufficient for ensuring improved student achievement. Unless educators commit to the hard work of adopting curriculum and instructional practices suited to their students' particular learning requirements, the belief that all students can achieve at high levels is likely to amount to nothing more than wishful thinking. Expecting more of students must be accompanied by significant and sustained changes in instruction that increase rigor and deliver the higher-level content that students are expected to master.

Increase Course Requirements and Rigor

If one theme has dominated the last two decades of education reform in the United States, it is this: The nation's schools must require students to master more challenging academic and technical subject matter. Since 1983, when the National Commission on Excellence in Education (NCEE) published *A Nation at Risk*, educators, the business community and the public have shared a heightened concern about students' inadequate preparation for further education and employment. As one step toward addressing this concern, the NCEE urgently called for states to raise graduation requirements to a minimum of four years of English; three years each of mathematics, science and social studies; and one-half year of computer science.

Many states and districts have responded by raising the academic course requirements for graduation. Levesque et al. (2000) analyzed several series of nationally representative transcript data and reported that the proportion of students who met the core academic standards advocated by NCEE increased from 13 percent in 1982 to 50 percent in 1994. The latest data from national transcript studies indicate that 55 percent of students met these standards in 1998.

The aim of requiring students to complete additional academic courses is, of course, for them to become more proficient with skills used in those subjects and to gain knowledge about the subject matter. There is mixed evidence on whether requiring students to take more academic courses actually achieves this aim. In their review of existing literature, Visher and Hudis (1999) found several studies that showed positive relationships between increased mathematics courses and student performance on tests (Gamoran et al. 1997; Hoffer, Rasinski and Moore 1995; Rock and Pollack 1995; Sebring 1987). However, Hoffer (1997) further investigated whether increasing the high school graduation requirement for mathematics from two years to three years affected students' mathematics proficiency scores. This study found that the requirement did increase the number of mathematics credits earned, but there was no significant increase in standardized test scores in schools with the higher requirement. Moreover, although one intent of requiring more mathematics courses is to reduce the achievement gap caused by socio-economic status, socio-economic status still had an effect on test scores at both groups of schools.

Hoffer was careful not to suggest that requiring students to take more math made no difference in mathematics achievement. Instead, he offered several possible explanations for why gains were not forthcoming. First, requiring students to take an additional year of mathematics also requires more teachers, some of whom may not have been prepared to teach the more advanced mathematics that the additional year represented. Second, simply requiring more students to take an additional year

of mathematics could have very different consequences for different students. For students who merely need the extra push to enroll in more challenging courses, the requirement may be sufficient to raise their achievement. But for students who are much further behind, demanding that they take a course that far exceeds their readiness actually may diminish their proficiency, especially if they receive no additional support. The policy, therefore, can produce gains for one group of students and losses for another. These "distributional" consequences of particular school-improvement strategies so far have received very little attention, and they need to be addressed in order to improve effectiveness.

In addition to requiring increased courses for graduation, many schools are attempting to raise the academic content of the courses offered. *High Schools That Work (HSTW)*, for example, expects its participating schools not only to increase the number of academic courses taken by students but also to ensure that students take more high-level courses that offer college-preparatory content in mathematics, science and English. *HSTW* strongly encourages schools to abolish the "general" track of low-level academic courses and to require all students to take more demanding subjects. Many schools are pursuing a related strategy: raising the academic and technical content of vocational/technical courses and encouraging students to select a career major that provides focus and depth to their program of study in high school. Although there are some preliminary indications that such strategies can improve student performance (Kaufman, Bradby and Teitelbaum 2000; Manpower Development Research Corp. 2000), more analysis is needed to understand better how to use these policies more effectively.

The most direct method of raising the academic and technical content of courses, no matter what they are called, is explicit attention to standards, in both the curriculum and assessments. In the last 10 years, considerable effort at the national and state levels has been devoted to defining clearly what students are expected to learn in each of the major academic disciplines and what they need to know and be able to do to prepare them for work in major industries and careers. There is not universal consensus on these standards, and much work remains to be done to translate them into grade-specific curricula that have direct applications in the classroom. Nevertheless, major initiatives are under way in many states, and there is a growing set of resources to help teachers use standards in strengthening their curriculum planning and instruction (Kendall and Marzano 2000; Bottoms, Purcel and Phillips 1997; National Center for Education and the Economy 1997).

In short, merely requiring students to take more academic courses is a rather blunt policy instrument. There is little prospect for raising student achievement if increased requirements are not accompanied by adequate staffing, sound teacher

preparation, curriculum changes that take into account student performance levels prior to implementation, and extra support for poorly prepared students. Ensuring that the content of required courses becomes more rigorous and challenging is just as important as — and probably even more important than — requiring students to take more courses. "More" may not always be better, and much more attention needs to be placed on helping educational leaders better understand the prerequisites for instituting these policies.

Eliminate Tracking of Students

In American schools, "tracking" is a pernicious and long-standing practice that combines low expectations with watered-down curriculum and uninspired teaching. In its most objectionable forms, tracking is not mere differentiation. Rather, it is the practice of separating students — often in strong association with race and socio-economic status — based on presumptions that some students are incapable of higher performance (a distinctly American supposition that achievement is primarily a function of ability) and therefore should be isolated from those who are more able. This type of tracking effectively codifies lower expectations for some students, denies them access to a more challenging curriculum and more capable teachers, and implicates schools in continuing a cycle of diminished opportunities based on race and class (Carnegie Council on Adolescent Development 1989; Oakes 1990; Quality Education for Minorities Project 1990).

Because the pros and cons of tracking have been debated hotly among both researchers and policy-makers, it is worth emphasizing that almost no one defends tracking that intentionally or unintentionally promotes discrimination by race, class or gender.[1] The much more important and inconclusive disagreements center around the nature and intent of differentiating and grouping students for reasons that promote sound educational objectives or are consistent with other socially appropriate aims.

For example, few would defend a low-level vocational curriculum that prepares students for dead-end, entry-level jobs and is used as a dumping ground for poor, black students, many of whom also may have been labeled "special-needs students." Unfortunately, there are far too many examples of such a curriculum, but no one is

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1 It is possible that this assertion is hopelessly ingenuous. There is plenty of evidence that both teachers and parents are strong supporters of tracking. Teachers believe it makes their jobs easier, and parents — at least parents whose students are placed in the higher-level tracks — believe that their children are educated better (White et al. 1996). It is possible to maintain these beliefs without underlying discriminatory aims, and we at least can hope that this is the case.

proud of them. However, more and more high schools have developed highly challenging and technically advanced "career majors" that are suitable for students who plan to attend four-year colleges as well as for students with other aspirations. This option is intended for students whose interests, aptitudes and styles of learning draw them to a program of study that is just as rigorous and challenging as the more conventional academic curriculum; emphasizes practical applications of academic concepts and skills; and uses a work-related theme to engage students in high-level learning. Such a program not only holds students who select it to high expectations but also may be the only effective kind of instruction for students who have difficulty learning abstract material that does not connect to their own experiences.

Both approaches to vocational education involve differentiation and grouping of students, and herein lies the dilemma. When does sorting students promote higher achievement — for all students, not just a subgroup isolated from the "contaminating" influence of another — and when does it not? And what if the benefits are not equal for all students, as they almost certainly will not be? School leaders generally lack the tools to address these questions in a fair, effective manner that causes a minimum of social tension.

This much does seem clear: Tracking that sorts students into less-demanding courses produces lower levels of achievement among those in the easier classes. For example, Gamoran et al. (1997) found that, when controlling for prior mathematics achievement and other relevant variables, the rigor of courses taken was associated with students' gains in mathematics achievement during high school. When other things were equal, students in college-preparatory mathematics courses learned the most, those in general-track mathematics learned the least, and those in transitional courses[2] fell in between. This study attributed the differences in skill growth primarily to the variations in rigor of the course content and learning activities.

In sum, students do not all have the same backgrounds, experiences, aspirations, interests, aptitudes, motivations or styles of learning. The great challenge is to fashion programs of instruction that adapt to — or, better yet, capitalize on — these differences to promote high levels of learning. Differentiation that accomplishes this objective is a worthy practice. However, grouping that rationalizes low expectations and an inferior education for a significant number of young people needs to be abolished permanently. Knowing how to tell the difference is, of course, the rub.

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[2] Transitional courses are those designed to introduce more challenging material, using various cognitive methods, to students who otherwise would be assigned to a low-track mathematics class.

Increasing Student Engagement and Motivation

"Why do I need to know this?" It is a reasonable question; people learn better and are more likely to retain what they learn when they have a good reason. Therefore, in addition to raising the bar through higher expectations and more challenging instruction, it is necessary to motivate students better and to engage them in both the satisfaction and hard work of learning.

Student engagement in school typically is measured on two dimensions: behavioral (degree of participation in classes and other activities) and affective (identification with school and sense of belonging). Many factors outside the immediate control of educators affect both aspects of student engagement. These factors include parental attitudes and support, nutrition and personal health, peer pressure, previous experiences with school, and a host of life encounters that shape attitudes, interests and aptitude. These external influences can be quite powerful and sometimes can overwhelm even the best efforts of a skilled teacher dedicated to finding effective strategies for engaging students.

Nevertheless, there are strategies that many schools have found effective. Four briefly considered here are 1) authentic instruction, 2) focused "thematic" curriculum, 3) smaller, more personalized learning communities and 4) customized student-support services. While all four influence both behavioral and affective engagement, authentic instruction and thematic curriculum affect students' classroom participation more directly, while smaller learning communities and more effective support services are more likely to influence students' identification with school and sense of belonging.

Emphasis on Authentic Instruction

A critical factor affecting most students' learning is the extent to which formal instruction enables them to interpret what is being taught — to connect the knowledge and skills upon which instruction is focused with the issues, problems and experiences that figure prominently in their lives outside the classroom. Some have called the curriculum and teaching practices designed to meet this objective "authentic instruction."

Newmann and Wehlage (1995) define authentic instruction as pedagogy that consists of four essential elements:

1) Students learn through tasks such as synthesizing information, generalizing from examples, explaining with their own words, or making deductions or inferences that lead them to new understanding of material.

2) Instruction covers material thoroughly and provides students with opportunities to explore connections and relationships among various parts of the subject.

3) Students discuss subjects extensively with other students and their teachers in order to develop a deep understanding of the concepts and to share insights with one another.

4) Students apply what they learn in school to their own lives and to issues outside the school, such as their future careers or volunteer work, public policy problems and local news developments.

In their review of research on the effectiveness of authentic instruction, Newmann and Wehlage found that achievement was higher in schools with highly authentic instruction. One study they reviewed indicated that authentic instruction not only raised average achievement but also reduced the variability in achievement. Using nationally representative data from students' scores on multiple-choice tests in ninth through 12th grade, the researchers found that authentic instruction produced larger average gains and lower schoolwide variation in achievement. In other words, adopting more authentic instructional methods reduced the gap between low achievers and high achievers. These methods were effective in raising achievement among students of low socio-economic status (who tend to have lower-than-average achievement scores and grades) and at-risk students in general.

One approach to making instruction more authentic emphasizes "context" and "experiential" learning (Resnick 1994). Students are encouraged to apply knowledge and skills to concrete, everyday problems. They also may learn through structured activities that, in real or simulated fashion, allow them to experience problem-solving and "learning by doing" in situations drawn from their experiences outside the classroom.

Unlike more behavior-centered forms of teaching, which tend to present standardized curriculum at particular stages of learner development, contextualized learning requires teachers to customize instruction to individual students or groups of students in ways that reflect students' experiences, interests and cultures. What is meaningful or relevant for one student may hold no interest for another. Therefore, contextualized learning demands more attention to developing teachers' abilities to customize the curriculum, and this technique also typically requires other structural modifications.

For example, when the curriculum is highly standardized, it matters little whether one teacher is responsible for a different group of 30 students in each of five periods per day or the same 30 students for all five periods. In both cases, the

student/teacher ratio is 30-to-1. However, when instruction requires greater individualization, the method of delivery is much more important. It is considerably easier to customize instruction for 30 different students than for 150. Contextualized learning depends not only on teachers' adopting new pedagogical methods but also on schools' adopting new organizational approaches, such as block scheduling or "schools within schools," that allow teachers to focus on smaller numbers of individual students. This is one example of why it is important that school and district leaders clearly understand the changes that successful classroom practices may require in the larger school structure for organizing and delivering instruction.

Focused Thematic Curriculum

One way to build a coherent, sustained program of contextualized learning is to use large themes to help organize and focus a comprehensive curriculum and longer-term course of study. Several well-respected educators and researchers have observed improved student achievement in schools, programs and classrooms that have clearly defined missions, educational focuses and organizing themes (Goodlad 1984; Hill, Foster and Gendler 1990; Sizer 1992).

There are many ways to create focus, but one that has been especially popular in high schools in the last 10 to 15 years uses the workplace as the organizing theme (Grubb 1995). Career magnet schools, career academies, technical high schools, and programs of career or industry majors are increasingly visible nationwide.

These initiatives were spurred partly by the Carl Perkins Vocational Education Act and the School-To-Work Opportunities Act, but they differ in some very important ways from traditional vocational education, which typically focused on preparing students for entry-level work in narrowly defined occupations that required less than a baccalaureate degree. Instead, these efforts adopt a much broader conception of work and are built around career clusters or major industries, such as health or communications. These broad themes provide a real-world context for organizing challenging programs of academic and technical study. Preparation for the work force remains an important objective, but the larger aim of these efforts is to help students master a broad, rigorous foundation of knowledge and skills that helps ensure success in postsecondary education and careers. Work-related issues, problems and situations provide the context for engaging and motivating students as well as a theme around which to focus their high school studies.

Career academies — secondary schools of about 200 to 300 students — are organized around a major industry, such as finance, health or transportation. They sometimes operate as "schools within schools" and sometimes as stand-alone institu-

tions. Career academies so far are the most clearly defined and most promising of these work-based innovations. A recent assessment by the Manpower Development Research Corp. — employing a rigorous experimental design — concluded that career academies achieve significant results with at-risk students. Those results include better attendance, lower dropout rates, the successful completion of more rigorous academic courses and higher rates of postsecondary transition (Manpower Development Research Corp. 2000). Earlier research by Dayton et al. (1992; Foothill Associates 1997) found similar results. Crain et al. (1999) studied the specialized vocational/technical high schools in New York City and found that their students were less likely than other students to drink alcohol, cut classes or become parents.

A thematic curriculum using a work-based focus can take many other forms, including cooperative education, internships, youth apprenticeships and career majors. Research on these strategies is much less conclusive, and none has found strong, statistically valid evidence that these strategies produce improvements in student achievement as demonstrated by standardized tests. This lack of evidence has several possible explanations.

First, these strategies simply may be ineffective. To raise student achievement, it is necessary to engage and motivate students better, but in the absence of attention to other requirements — such as a significantly upgraded curriculum or better teaching practices — programs of study organized around the workplace may not have any effect on student achievement.

Second, while career academies have a fairly well-defined structure and set of organizing prerequisites, these other work-based strategies vary greatly in how they are defined and implemented in high schools. For example, a career major called "construction technology" may be simply a new label for the same programs — carpentry; masonry; electricity; and heating, ventilation, and air conditioning — that formed the traditional vocational-education program. On the other hand, it may be a very innovative program that combines some of the content from traditional trades programs with challenging new material from architecture, environmental science, landscape management, interior design and construction engineering.

Many teachers, high school principals, superintendents and school board members do not clearly understand how best to transform traditional vocational education, which too often has consisted of low-level academic and technical content, into rich and demanding programs that use workplace situations to engage students in complex, interdisciplinary problem-solving and analysis (Hoachlander 1999). Consequently, the contextual and thematic potential of work-based programs remains largely untapped.

Smaller Learning Communities

Although two-thirds of American high schools have fewer than 1,000 students, these serve less than 30 percent of all high school students. More than 70 percent attend high schools with enrollments greater than 1,000; 50 percent attend high schools with more than 1,500 students (U.S. Department of Education 1999).

Large high schools can be impersonal places where many students feel lost, alienated and neglected. Large schools tend to have higher rates of absenteeism and dropping out; they also experience more discipline problems (Darling-Hammond 1997; Lee and Smith 1993). As a result, many educators and policy-makers advocate the creation of smaller, more personalized learning environments for high school students (Meier 1996).

Achieving this objective does not require dismantling all large high schools and building smaller ones, nor does it mean that construction of high schools should focus only on small schools. One way to create a more appealing sense of scale, even at high schools of 2,000 or more students, is to establish "schools-within-schools" (career academies are a specialized example, but schools-within-schools do not have to be organized around career themes), in which groups of 300 to 500 students take a substantial number of classes together, share common teachers and counselors, and participate in intramural sports and other extracurricular activities.

While schools-within-schools usually are defined spatially — different wings of the school, for example — it also is possible to create smaller learning communities around common sets of interests shared by students and faculty. Students can build a stronger sense of belonging and school identity through a high school major that enables them to focus their high school program, join with other students who have the same interest and obtain more sustained personal attention from a common group of teachers.

Smaller learning communities can help support the important objective of strengthening interactions among young people and adults in high schools. Whether by design or by default, the organization of most high schools isolates young people from the adult world and generally inhibits the development of any strong bonds between students and adults in the schools and in the community. Smaller learning environments reduce significantly the number of students for which any one teacher is responsible, allowing teachers to work with the same students over three or four years and promoting communities of interest common to both students and teachers. In this way these small communities promote healthy intergenerational activity.

Amid growing policy interest in promoting small schools, it should be stressed that large schools can offer certain advantages that small ones cannot. They often can provide a richer curriculum, including a wider range of more advanced and specialized courses. They also are likely to accommodate a greater diversity of student interests — academic, social and extracurricular. Consequently, the challenge for educational leaders is to design strategies that capitalize on the advantages of both small and large high schools.

Improved Support Services for Students

There are many promising strategies for improving student achievement: raising expectations; increasing the academic and technical rigor of the curriculum and instruction; customizing instruction to students' individual experiences and interests; and creating more effective learning communities to promote stronger bonds to the school and among the school's students and adults. But if achievement is to be raised among all students, especially those who have struggled under more traditional approaches to education, it also is necessary to strengthen various support services that supplement and reinforce basic instruction (Levin 1988; Louis and Miles 1990; Quality Education for Minorities Project 1990).

It is easy to check off what these services include: special tutoring, additional in-class support for students with special needs, special equipment, supplementary materials in languages other than English, child care, counseling and so on. Moreover, although the needs still exceed the help provided in some school districts, federal and state categorical aid targeted to at-risk students supplies most schools with plenty of resources to furnish these additional services. It is much more difficult to employ these services effectively — determining precisely what will benefit a particular student or group of students and ensuring that the prescribed treatment is high-quality and produces results.

Special services are as difficult to develop as good classroom teaching, and yet too many schools treat them as an afterthought. One example is tutoring. Van Lehn, Siler and Baggett (1998) stress that successful learning often requires that the student make an error or reach an impasse; too much help can prevent learning. Moreover, successful tutorial methods differ for different pieces of knowledge. For instance, some pieces of knowledge are learned only if the tutor emphasizes generalization, while other learning requires that the tutor first explain why the student has made an error. In short, good tutoring — whether through direct classroom instruction or through supplementary service — depends on highly skilled teaching. Yet supplementary tutoring often is relegated to volunteers — parents, college students, student teachers or aides — who receive little or no training that might make their efforts substantially more productive.

Providing Focused, Sustained Professional Development

It is hard work to redirect schools toward a common vision of high expectations for all students, strengthened academic and technical curricula, authentic instruction tailored to students' interests and life experiences, and appropriate, targeted support services. This task demands, at a minimum, considerable time for 1) building consensus among faculty on the need for change and the direction it should take; 2) planning the reorganization of programs of study and developing a new curriculum; 3) designing and implementing major changes in the schoolwide delivery of instruction (such as designing schools-within-schools, modifying class schedules and creating common planning time for teachers); 4) strengthening teachers' abilities to understand and use the new curriculum and instructional practices; and 5) creating sufficient time for reflection on and modification of school improvement efforts.

Professional development typically is used to carry out this agenda. Yet despite the considerable resources that most schools devote to professional development (six to 10 days per year is not unusual), teachers and administrators alike generally have negative opinions of professional development. Most educators view professional development as an ad hoc, disconnected series of one-time activities that have little or no impact on improving student learning or the school culture in general. An essential objective for leadership development, therefore, is improving leaders' abilities to use professional development to focus and sustain a well-conceived agenda for school improvement.

To realize this objective, at least five aspects of professional development deserve attention:

1) creating a collaborative culture that is attentive to goals and planning comprehensively to achieve them;

2) defining and prioritizing a focused, ordered agenda for staff development that is linked tightly to a school's plan for improvement;

3) relying on teachers to train teachers;

4) recognizing and using mentor teachers; and

5) attending to the ongoing development of principals, superintendents and other educational leaders outside the classroom.

Goal-Driven, Collaborative School Culture

Although many strategies to improve student achievement can be adopted and implemented by a single classroom teacher and therefore do not necessarily depend on external stimuli or collaboration, building a school dedicated to continuous improvement for all students requires leadership from outside individual classrooms. This leadership needs to come especially from principals but also from superintendents and school board members. Key responsibilities of school leadership are articulating a vision for school improvement, developing a plan to achieve it and managing the implementation and revision of that plan over time.

Vision by fiat, however, is seldom effective. There is substantial evidence that it is important to form visions and plans collaboratively (Louis and Miles 1990; Méndez-Morse 1992; Peterson and Solsrud 1996). For example, principals can and should identify and communicate goals and steer the focus of activities toward meeting them, but they must not dictate roles and responsibilities. They need to involve faculty — and even students — in defining and setting goals, developing action plans and establishing priorities for implementation. Effective principals and superintendents combine vision with ongoing attention to schoolwide discussions, resolution of differences and consensus-building.

To redirect schools toward higher expectations for all students and more rigorous programs of study, educational leaders can facilitate productive collaboration and teamwork (Louis and Miles 1990). In order to support collaboration and effective development of goals, leaders need to share and delegate their power and authority; provide incentives and rewards for staff who take on expanded leadership roles; practice openness and inclusiveness; and approach the process with patience. Involving faculty in defining and directing school change strengthens commitment to improvement and identification with school goals (Peterson 1994); research indicates that it also produces higher student achievement (Barth 1981; Clark and Clark 1994; Little 1995) and sharpens the effectiveness of professional development (Leithwood 1992).

While facilitating consensus-building, principals and superintendents need to stress attention to results. Too often planning and goal-setting in education focus on the processes — encouraging more integration of academic and vocational curricula, creating more joint planning time for teachers, adopting alternative forms of assessment and so on. Although plans should attend to processes, the processes need to be directed toward achieving clearly specified results for students — for example, higher achievement in mathematics, science and reading; higher rates of high school completion and transition to postsecondary education; and better attendance.

Committing any organization — including a school or school district — to achieving specific results often is threatening. Principals and superintendents play a critical role in keeping schools focused on improvement goals that are well-defined and challenging but also realistic.

Maintaining a goal-driven, collaborative school culture also depends on clear and frequent communication. Larsen (1987) examined differences in communication between low-achieving and high-achieving schools and concluded that principals at high-achieving schools communicated to teachers their high expectations for student performance more frequently than did principals at low-achieving schools. Principals at high-achieving schools also discussed instructional methods (especially how these methods can influence student achievement) and visited classrooms frequently, communicated instructional goals clearly, observed other schools' programs that had been recognized for curricular innovation, and required systematic measurements of student progress.

Effective, Focused Program of Staff Development

Ideally, a school's professional-development agenda would be determined by its school improvement plan and would have clearly established priorities, well-specified strategies, identified target groups, and reasonable timelines and resource allocations. In reality, many pressures outside the direct control of principals and superintendents influence how staff development proceeds. State initiatives, federal regulations, legal concerns and other factors that may or may not coincide with local objectives and priorities can deplete staff-development resources and send teachers off in many different, uncoordinated directions.

A more fundamental problem may be the widespread assumption that professional development is primarily a "program" — a series of formal training sessions that take place on specific professional-development days (often designated by the local collective-bargaining agreement). While these activities may have value, concentrating on how to make better use of this approach may divert attention from more promising strategies.

For example, a growing body of research supports the notion that "experience is the best teacher." Fostering talent and developing specific competencies and skills may be accomplished best by ensuring that staff have on-the-job opportunities to experience various structured, developmental situations. Important developmental experiences can include 1) supervising — managing other people; 2) starting from scratch — building something from nothing; 3) fixing or stabilizing a failing operation; 4) participating in and successfully completing a discrete, temporary project

(either alone or as part of a team); 5) managing a significant increase in responsibility, expanded scope, or larger numbers of people and resources; 6) working with superiors with exceptional (good or bad) qualities; and 7) confronting a subordinate with a serious performance problem (McCall, Lombardo and Morrison 1988; McCall 1998). It may seem self-evident that such experiences are powerful and instructive, but very few organizations — schools or otherwise — view professional development as a plan for harnessing systematically the lessons of these on-the-job experiences. Rather, the focus is typically on training that is separate and distinct from the daily work of the school.

Formal training can be beneficial, especially if training is linked closely to powerful on-the-job experiences. McCall (1998) notes:

> Training can be used as a substitute for experiences that are not widely available or are too risky for "rookies" (e.g., simulations, action learning). Training can be used as a supplemental experience to provide learning opportunities that are useful in addition to what is already happening on the job (e.g., university-based strategy program simultaneously with a staff assignment in strategic planning). (p. 79)

The issue is one of emphasis. Traditional professional development focuses almost exclusively on training that is largely separated — even isolated — from the powerful, formative experiences that teachers and administrators encounter in the daily operation of schools. A more effective strategy might have a primary focus on defining these key experiences and structuring and supervising how staff are exposed to them, with a secondary focus on providing external supplemental support.

In short, an effective professional-development program is not merely an agenda for designated in-service days. Ideally, it is a continuous process of learning through experience and through external training and other supplemental activities. Leaders can help to model this kind of expected development by demanding it of themselves. For example, the National Association of Secondary School Principals (1996) recommends that principals engage in lifelong learning and improvement by setting goals and assessing their progress toward those goals. It further encourages principals to create and follow "personal learning plans" similar to those that they should require of teachers. Recommended self-assessment techniques include writing a self-assessment journal, identifying performance indicators, tracking progress toward goals by documenting specific actions, discussing problems and successes with a mentor, and asking for advice from the mentor (who may work in business or the nonprofit sector, rather than in education) and perhaps colleagues.

Teachers as Developers of Other Teachers

One strategy for making staff development more experiential is to rely more on teachers to develop one another. Teaching traditionally has been a lonely profession, with little or no opportunity to work with other adults. The school culture usually neither supports the exchange of ideas among staff nor provides much collective meeting time. As a result, teachers are not accustomed to working together.

Formal in-service training — traditionally delivered by professional staff developers, consultants or university professors — is beginning to rely more heavily on teachers to design technical assistance and provide it to other teachers (Bradley 1993; Clark and Clark 1996). States, associations such as the American Federation of Teachers, and foundations all have initiated innovative professional-development projects that use teachers to train other teachers. According to many experienced observers of these projects, more and more states are identifying teams of teachers to train other teachers. For example, when Vermont instituted a new assessment system for writing and mathematics in the 1990s, the state Department of Education selected certain teachers as network leaders, provided them with intensive training and made them available to other teachers statewide through different venues. Teachers who sought training could choose the length and timing — from comprehensive workshops to short meetings or phone calls (Lieberman and McLaughlin 1992).

Although these strategies appear to be successful, they present important developmental and logistical challenges. These challenges include valid processes for 1) identifying effective, knowledgeable teacher-trainers; 2) providing adequate preparation and support for the training cadre; 3) minimizing the disruption caused by taking teachers away from their classroom responsibilities to lead in-service programs, often in other schools and school districts; and 4) balancing teacher-trainers' classroom teaching and training responsibilities.

Finally, an oft-overlooked vehicle for encouraging teachers to exchange ideas regularly about teaching is the faculty meeting (Barth 1981). Simple changes to the routine — such as holding faculty meetings in different classrooms each time and designating different teachers to host the meeting and describe curriculum issues, teaching methods or solutions to a problem — can stimulate teachers to discuss instructional practices more regularly and systematically.

Professional Development via Mentor Teachers

Although relying more heavily on teachers to deliver in-service programs can strengthen these professional-development activities, the practice still reflects a view of professional development that is largely "programmatic" and concentrated on the formal, external offerings scheduled outside the daily practice of teaching. Some who study professional development advocate embedding help more directly and frequently into classroom operations by using mentor teachers to provide other teachers with informal training; support and advice (Little 1985, 1995).

In one California project, for example, "teacher-advisers" were paired with less experienced teachers to provide ongoing, individualized training (Little 1995). The project identified both "peer" and "expert" advisers. Peer advisers could provide help when asked but were to refrain from offering advice or directing other teachers' behavior. Peer advising emphasized collegiality, mutual respect and shared experiences as equals. Expert advisers were more active; they gave guidance on curriculum and instructional methods and initiated specific teaching and learning activities. Both kinds of advisers were trained to communicate using concrete examples, respect, humor and imagination.

While mentoring long has been part of student teaching programs (though many would argue it has not been a very thoughtful or systematic part), most schools lack well-defined processes for using experienced teachers to coach others on the permanent staff.

To make better use of mentoring, many issues must be addressed carefully. For example, precisely what are the qualities of mentor teachers, and how will these teachers be selected and rewarded? What are their specific responsibilities for working with other teachers, creating individual development plans and evaluating progress? How will their time be restructured to permit more opportunities for team teaching, advisement, observation and assessment? How do these changes affect the larger organization of instruction in the school — scheduling, program design, and dominant forms of teaching and curriculum design? Many principals and superintendents generally support mentoring but do not understand the specific responsibilities it entails or the organizational changes needed to make it work.

In sum, strengthening the ability of education leaders to use professional development more effectively needs considerable work. While the substance and form of traditional in-service activities would benefit from better focus and sustained attention, the greatest payoffs may come from looking at professional development as much more than the six or so days that are set aside in most schools. Making professional development an ongoing part of teaching and managing instruction —

targeting it on carefully defined on-the-job experiences that shape teachers' and administrators' understanding of what strategies improve teaching and learning — needs to become common practice in schools.

Planning of professional development in any form should involve those it is intended to support (Clark and Clark 1996). Adults generally adapt better and feel more motivated to change when they have input into the process. Whether through a formal committee or less structured approaches, school personnel should have the opportunity to help define the basic objectives of professional development, its content and its organizational forms.

Organizational and Management Practices That Support Student Learning

The organizational changes required to take better advantage of professional development are only one aspect of a larger set of issues related to how the structure and management of schools affect student learning. Much has been written on this subject in the last 20 years, and it is impossible to do more here than briefly address a few important topics.

Shift Decision-making Authority to the School Level

Many observers have called for giving those who work in a school responsibility for making decisions about issues that affect the school, its staff and students (Guthrie 1986). Leithwood and Duke (1993) state that "the level of organization most likely to produce the greatest educational benefit for the least cost is the school." However, in many school systems the central district office retains control over matters such as curricula, textbooks, much of the instruction-related spending, class sizes and organization, tracking, school schedules, teacher hiring, staff salaries and bargaining with teachers unions. With pressures mounting for increases in student achievement and conservation of funds, educators often have recommended that many of these decisions should be shifted to the schools (Barth 1981; Leithwood and Duke 1993; National Association of Secondary School Principals 1996; Newmann and Wehlage 1995).

Experts also believe that democratic participation should increase, even at the school level. In other words, principals should collaborate with other staff members rather than hand down rules and decisions. One approach is to create site-based management bodies that are charged with making many decisions; these bodies

usually include school administrators, teachers, other staff, parents and other community members and sometimes include students. Encouraging broad participation spreads around the burdens of new tasks and avoids the natural tendency to resist changes imposed from above.

Acquire and Manage Financial and Material Resources

One idea that education has borrowed from business is that efficient and effective decisions are made best by those closest to the issues and resources. Although school budgeting and spending decisions usually fall under the principal's purview, some experts have urged that teachers become more involved in these matters. One longtime principal found that teachers were extremely resourceful in sharing materials and saving funds when they were given the opportunity to manage a budget for school books and supplies (Barth 1981). If the faculty devise school goals together and at least a majority support those goals, granting some spending decisions to the faculty is not a large step. Decision-making authority, once it is entrusted to the schools, needs to be decentralized further. Principals need to distribute such authority among staff, whether to small groups responsible for particular areas or to the faculty as a whole. Principals need to encourage wise decision-making about financial resources, and one way to bring wisdom forward is to get ideas from more staff.

Many school districts have particular funding needs that are not being met by the budget. In wealthy districts, even when the funds allocated from state and local tax revenues are insufficient, parent groups and local businesses often fill the gaps. Most urban districts do not have such good fortune, so schools must seek their own supplemental funding when it is required. Principals have an obligation to seek out opportunities for additional support, such as grants from businesses, nonprofit foundations and government agencies (National Association of Secondary School Principals 1996). Effective leaders regularly scan information on these sources and carefully select those that fit well with the school's goals.

While some organizations, such as the National Association of Secondary School Principals, advocate seeking additional funds for the numerous areas in which public high schools need to change and improve, others say it may be more effective to reallocate existing resources. Louis and Miles (1990) argue that the latter course is more effective for two reasons. First, when the school and the district both decide to allocate the funds and time to make a new program work, seeing the effort through and integrating changes into the school's existing culture and activities build commitment among all parties. Second, reallocating existing funds makes long-term change more likely. (Outside grant money is always temporary

and usually short-lived; when this funding ends, a program relying on it is usually difficult to sustain.) While steady funding levels may be sufficient to continue programs, additional resources often are necessary if school staff are trying to plan and implement new teaching techniques, new curricula or whole-school reform efforts. Louis and Miles (1990) suggest that a large urban high school needs to allocate at least $50,000 a year to plan and implement schoolwide reform.

When principals take the lead in obtaining additional resources, the effects are likely to be indirect — or at least difficult to measure directly. A study by Larsen (1987) did conclude that principals at high-achieving elementary schools worked more consistently than those at low-achieving schools on helping teachers obtain resources to implement their instructional programs as well as on performing other tasks that supported teachers' work (Bamburg and Andrews 1990).

Use Flexible Schedules to Increase Learning Time

Several studies have recommended that all school staff work to minimize interruptions and take other steps to carve out the greatest possible amount of learning time from the limited hours in the school day (Leithwood and Duke 1993; National Association of Secondary School Principals 1996). Strategies for leaders focus on providing direction, supporting staff and figuring out useful ways to alter the schedule when necessary. For example, leaders' emphasis on maximizing academic learning time affects not only the perception of academic rigor within the school but also students' learning because they have more time to build their understanding of the material.

Increasing the time available for learning has been linked to higher levels of student learning (Miles and Darling-Hammond 1998). Principals can help focus available time on learning by reducing interruptions, such as those caused by public address announcements, pullout programs, extracurricular activities during the school day, and classroom changes (Leithwood and Duke 1993).

Reducing time wasted by class changes implies revamping the entire school schedule to make class periods longer, which has been recommended by various reform-minded experts (National Association of Secondary School Principals 1996). Longer class periods achieve several goals; most important, they give students uninterrupted time in which to concentrate and make progress on difficult concepts and projects. Longer blocks of time also facilitate students' participation in off-campus learning — courses at a community college or work-based learning, whether at internships, community service placements or other part-time work related to studies (cooperative education). Another benefit is that teachers can have longer prepa-

ration periods in which they, like their students, can tackle more in-depth projects and perhaps work with other teachers to plan a joint curriculum and exchange ideas.

A variety of alternative schedule types are described in Visher, Emanuel and Teitelbaum (1999); these flexible schedules share the common element of longer class periods, requiring students and teachers to make fewer transitions in their focus during the day. With fewer courses on which to concentrate, students can focus intensively and learn more material; they can explore their ideas more thoroughly through projects, longer papers and experiments. Teachers can prepare more in-depth lessons and perhaps get to know their students better (especially if the schedule changes are implemented in conjunction with smaller groupings of students). Many teachers will appreciate the flexibility that comes with a block schedule. For example, if two teachers of different subjects are given a block of time that they can teach together, they can teach the entire period on alternate days, or they can plan integrated classes that blend material from two subjects and teach them together.

Several studies have concluded that block scheduling and other alternative scheduling are especially helpful for at-risk students, who may achieve more in school if they take fewer courses on a more intensive schedule (Visher, Emanuel and Teitelbaum 1999, citing Kramer 1997; Carroll 1994; Fletcher 1997). Moreover, certain researchers have found that alternative schedules may contribute to better results with students, including higher grades and test scores, more passed courses, better attendance and fewer disciplinary problems. However, these studies generally examined schools that had implemented a range of reforms, so the effects of scheduling changes alone could not be isolated. Indeed, scheduling changes alone cannot produce improvement; however, they are often one of the first steps that must be implemented in order to support substantive changes in the curriculum and instructional methods.

Integrate Several Organizational Changes to Create Whole-School Reform

Miles and Darling-Hammond (1998) found that reallocating teaching resources can achieve surprisingly good results, even in schools with high percentages of poor and educationally disadvantaged children. These researchers studied five urban schools (three elementary and two high schools) that had implemented schoolwide reforms and were noted for high student achievement. The schools all had diverse and challenging student populations; in one of the high schools, all students were recent immigrants with limited knowledge of English.

What factors could account for such success with groups that normally are considered difficult to teach? The schools implemented integrated reforms that simultaneously addressed several aspects of teaching and management. Their strategies, which reflect many of the principles described in this section, included flexible schedules with longer periods; additional common planning time for teachers; smaller groups and other structures to increase personal connections; and more flexible groupings of students to reflect instructional needs. These changes allowed the schools to reallocate teaching resources to raise achievement without requiring extra funds, other than perhaps limited start-up funds for training and planning. Specific changes included the following: reducing class sizes drastically for certain priority subjects, such as reading; extending the school day and hiring part-time teachers, student teachers and paraprofessionals to help cover the extra time; and increasing common planning time for staff through several methods, including rearranging the schedule and placing students in appropriate community-service jobs.

Building Linkages

Schools are part of a larger community of parents, employers, organizations and individuals, all of whom have a stake in the mission and effectiveness of those formally charged with preparing young people for life and work. Schools have a responsibility not only to communicate clearly to these groups what the schools are trying to accomplish and how but also to harness these groups' resources and expertise to help in achieving school aims. It is a well-established understanding that education leaders should forge partnerships with the larger community; there is less understanding of how best to build these linkages and to what ends.

Stronger Parent Involvement

Research shows that students learn more when parents are involved actively in their education (Horn and Chen 1998; Keith and Keith 1993; Shartrand et al. 1997). For example, students learn more when parents read to them, provide books and other reading material, limit television usage, supervise how they spend their time and generally take an interest in how they are doing in school (Byrne 1995; Grissmer 1994). When parents and teachers collaborate — informally through parent/teacher conferences and other communication or more formally through signed contracts — the alliance sends powerful messages to students about expectations, care and support. Parents are also valuable resources — whether for specialized expertise that can supplement classroom instruction, financial support or help with extracurricular activities. Some schools also are involving parents more directly in

planning and managing school improvement by including parent representatives on school-improvement advisory boards (Carnegie Council on Adolescent Development 1989; Louis and Miles 1990).

Like any other aspect of schooling, parental involvement requires thoughtful structure and ongoing attention. Everyone has been to school, and, consequently, everyone has an opinion about what schools should be and do. Parents' views deserve respect and consideration, but educators also have the right — indeed, the responsibility — to place appropriate limits on parental influence. They should expect parents to entertain new ideas and instructional practices that may depart significantly from parents' memories of school. In return, educators have the obligation to communicate clearly to parents the rationale — in theory and, wherever possible, with empirical documentation — for particular programs and practices.

Employer Involvement

School/business partnerships have grown in popularity during the last decade or two. Once mainly asked to advise on the design of vocational education programs, employers now are pursued for many reasons: "adopt-a-school" initiatives, formation or support of local education foundations, mentoring and job-shadowing programs, internships and work experience (in some cases, for teachers as well as students), and public support for higher standards and other school-improvement objectives.

Business has much to offer schools. Integrating classroom-based learning with work-based instruction — through such strategies as cooperative education, youth apprenticeships and supervised work experiences — can help students better understand the relevance of mathematics, science, English, social studies and other parts of the curriculum (Stone et al. 1990). Employers can play a critical role in helping to define challenging, authentic problems that require students to apply cross-disciplinary knowledge as well as skills like teamwork, systems analysis and trouble-shooting. They are good partners for helping to assess whether students have mastered the kinds of knowledge, skills and work habits that will help them succeed in careers as well as in further education (Stasz 1997). Business is also an excellent source of management expertise and help with accountability.

However, as with every other partner, educators need to maintain healthy checks on the amount of influence business can wield in schools. Employers can be just as shortsighted, culture-bound and self-serving as anyone else. They have immediate needs that may or may not be compatible with the long-term interests of students. While they may understand what their employees need to know and

be able to do to succeed in their workplaces, they usually do not have any special expertise in how best to design curriculum and instruction to produce these results. Educational leaders, therefore, must define clearly what employers can contribute to school improvement and where their influence should be circumscribed.

Monitoring and Accelerating Improvement — Assessment and Accountability

In July 2000, the new superintendent of schools for Oakland, Calif., announced that, for the first time in the district's history, school principals would be expected to meet annual goals for improving test scores, truancy and graduation rates. Principals whose schools do not improve risk being reassigned at the end of the year and even losing their jobs. To help keep everyone focused on the performance targets, a performance report will be posted outside every principal's office. It will display a series of speedometer-like gauges that show the school's test scores, graduation rate, number of suspensions, and attendance rates of students and faculty.

Although relatively few school systems have gone as far as Oakland in linking student performance to job tenure, the press for greater accountability in education is highly visible in schools nationwide. More and more states, for example, are adopting high-stakes assessments that not only determine whether students are promoted from one grade to the next and whether students receive high school diplomas but also affect schools' accreditation and their ability to operate without extensive state intervention.

In many cases, the educational leaders of schools and school districts are not prepared to manage accountability effectively. At least three issues require attention: 1) understanding assessment, its strengths and its limitations; 2) knowing how to design and implement sound, data-driven evaluations to assess local school improvement; and 3) knowing how to transform traditional management-information systems from administrative record-keeping to accessible, useable systems for school improvement.

Assessment

Standardized tests, norm-referenced and criterion-based assessments, performance testing, portfolios, competency-based assessments — with the increased push for accountability have come many different tools for measuring student performance. None of these instruments is perfect, and as scores on these tests assume

greater stakes (such as high school graduation or the tenure of teachers and principals), it is not surprising that even the strongest advocate of accountability wavers when the consequences become both personal and substantial. Justifiably, as the consequences of a particular assessment increase, so does attention to its flaws and limitations.

A great challenge for educators is using assessment appropriately and wisely while avoiding particular abuses and bad practices that threaten to undermine irreparably the general notion that schools, as well as students, are responsible for accomplished learning. This is no easy task. It demands not only a solid understanding of what different assessments are designed to measure and how well they work but also the ability to address the concerns of students, parents and teachers about issues such as validity, reliability and fairness. For example, teachers need help understanding how best to direct curriculum and instruction toward specific forms of assessment — when "teaching to the test" is justified and when it is not. Parents need assurance that tests are measuring what matters, that their children are assessed fairly and that the results will help teachers address deficiencies in student performance. Many teachers, principals, superintendents and educational policy-makers lack essential knowledge of assessment and the ability to communicate it well.

Data-Driven Evaluation for School Improvement

Educators are accustomed to viewing data as something to report to somebody else, not as information useful for guiding their own efforts at improvement. The basic information collected by schools — attendance, disciplinary actions, grades, courses taken, dropout rates and high school completion — is stored in administrative records, far removed from daily classroom practice and the business of school improvement (Hoachlander, Levesque and Mandel 1998).

Most educators receive little or no training in using data. Schools long have been the subject of evaluation, but "subject" simply underscores the problem. Evaluation is done to schools, mainly instigated by external sources and conducted by outside experts; evaluation is not done by schools as part of an ongoing process of self-reflection, analysis and development. Consequently, schools operate with surprisingly little information about how they are performing and what the results might mean for altering curriculum, teaching practices, scheduling and other aspects of instructional organization, student support services, staff development and so on.

There is, of course, a continuing need for external evaluation. Sound research and careful policy-making require the rigor and expertise of universities and other organizations that specialize in traditional evaluation. It is neither possible nor necessary to duplicate that kind of capacity in every school. Nor is it necessary to train educators to be expert evaluators.

Rather, what is needed is more basic "data literacy." Teachers, principals, superintendents and school board members need to be able 1) to make informed first impressions from information on school performance; 2) to analyze performance indicators (for example, performance distribution among subgroups of students; variations in performance by discipline or by the intensity of a particular instructional strategy); and 3) to connect these quantitative inferences to understandings based on their qualitative experience, personal judgment and professional expertise. This kind of participatory self-evaluation probably will lack the rigor and conclusiveness of an external evaluation by experts, but it will have greater relevance, specificity and timeliness. As long as the findings are consistent with the results of more stringent research or with the expectations of accepted theory and practice, school-based evaluation and assessment can play an important role in sustaining continuous improvement.

Much more work needs to be put into finding the best way to develop data literacy and self-evaluation in schools. Levesque et al. (1998) offer one practical guide for using data to improve practice, but such initiatives need more than just strategies for implementation and design. They also would benefit from more attention to the conceptual underpinnings for good school-based self-evaluation. To date, evaluation researchers have tried to replicate in educators the same knowledge about evaluation expected of formal, expert evaluators, rather than defining knowledge and skills better suited to the typical school's more chaotic and more immediate requirements.

The "balanced score card" is an evaluation approach that perhaps is suited better to the jumbled, multifaceted world of schools. This strategic management process, which was developed by Kaplan and Norton (1996) and builds on Deming's classic work (1986) about total quality management, was designed initially for business and was intended to expand the corporate world's focus beyond the "bottom line." Government and the nonprofit sector increasingly are experimenting with the balanced score card, which aims to equip organizations with specific, practical strategies for clarifying multiple objectives, defining quantifiable measures and setting performance targets. Organizations collect and analyze data to promote growth and continuous learning about themselves. The process also stresses close attention to how the organization's practices and resources affect desired performance results.

From Administrative Records to Data for School Improvement

Any effort to strengthen the capacity of schools and educators to make better use of data for school improvement confronts a classic chicken-or-the-egg question. Because almost all data about school operations and performance are stored in management information systems that are not easily accessible to educators (the systems are typically the rather exclusive province of a small number of technicians charged with administrative record-keeping), it is difficult for educators to use data in transforming school practices. And because it is difficult to use data for school improvement, most educators do not. There rarely is any pressure to make data systems more useful and accessible.

Of course, schools are not the only organizations that severely limit access to data or fail to develop analytic tools that help improve operations. Moreover, there are important issues surrounding wider access to information (such as privacy concerns or misuses of information), and these issues need to be resolved through well-designed protections and procedures. Nevertheless, there is a growing consensus in the private sector that significant improvement in quality and more efficient production depend on developing timely analyses of information and giving those in the front-line positions easy access to that information.

Schools could benefit significantly from these lessons. Any benefits, however, almost certainly will depend on principals' and superintendents' leading and managing a major change in schools' information culture. To succeed in changing this culture, they must understand better how using data can promote improvement and must focus students, faculty and parents on achieving challenging but realistic targets for higher performance.

Promoting School Improvement Through Leadership Development: A Concluding Note

Significantly raising the achievement of all students — promoting learning that is wide-reaching while also deeply rooted in well-developed insight and relevant experience — is, without doubt, the top priority of formal schooling. Leadership surely has an important role to play in realizing this objective. We certainly could do a much better job of developing and supporting the people who direct and manage schools, but how to do so is far less apparent.

Clarifying what educational leaders need to know and be able to do is a worthy endeavor. Designing strategies to ensure that leadership training and ongoing professional development produce and strengthen these skills also is valuable. But effective leadership is only one piece of a complicated school-improvement puzzle. If leadership development is to produce notable gains in student learning, it is essential to understand where effective leadership fits in the larger process of reform and how it relates to — and perhaps depends upon — other major changes in the practice of schooling. Like several of this paper's other conclusions, that is a proclamation much easier said than done.

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